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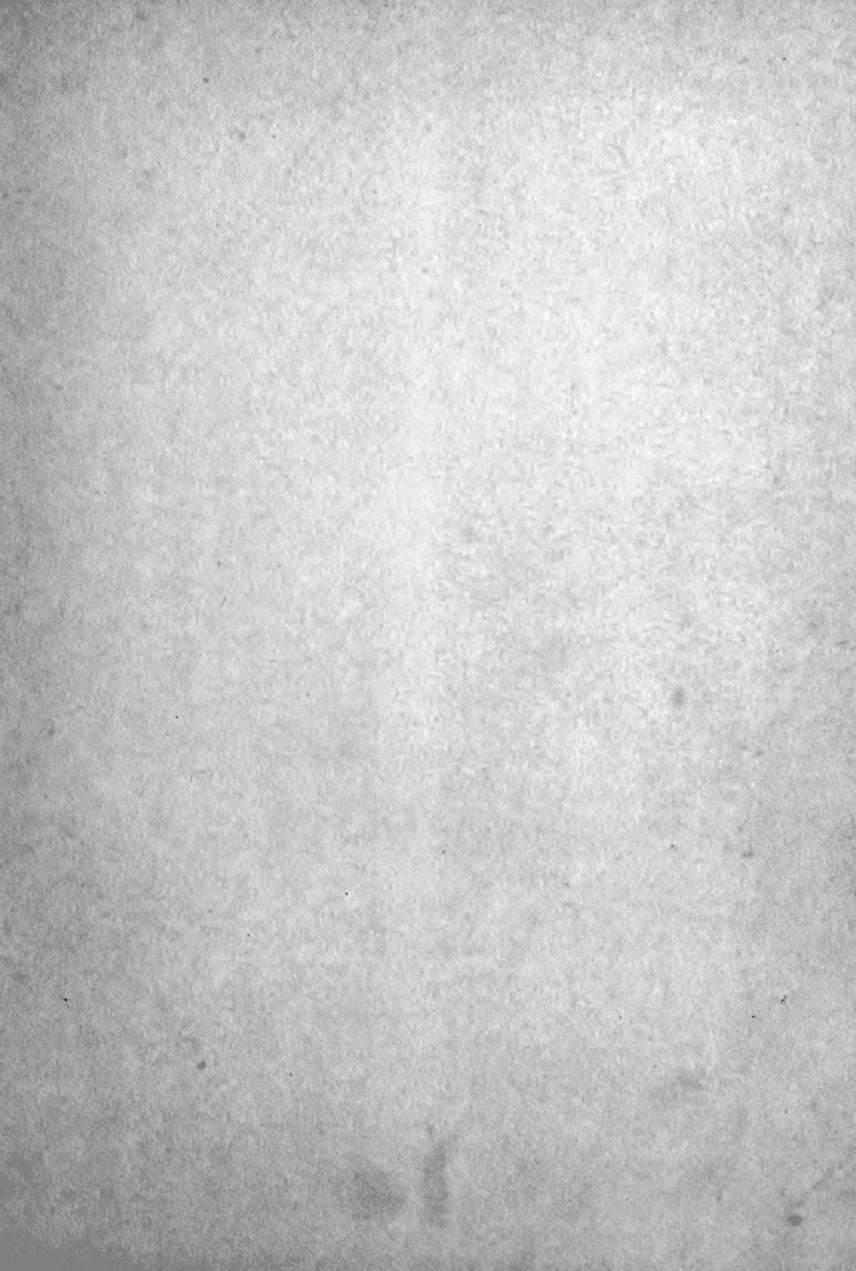
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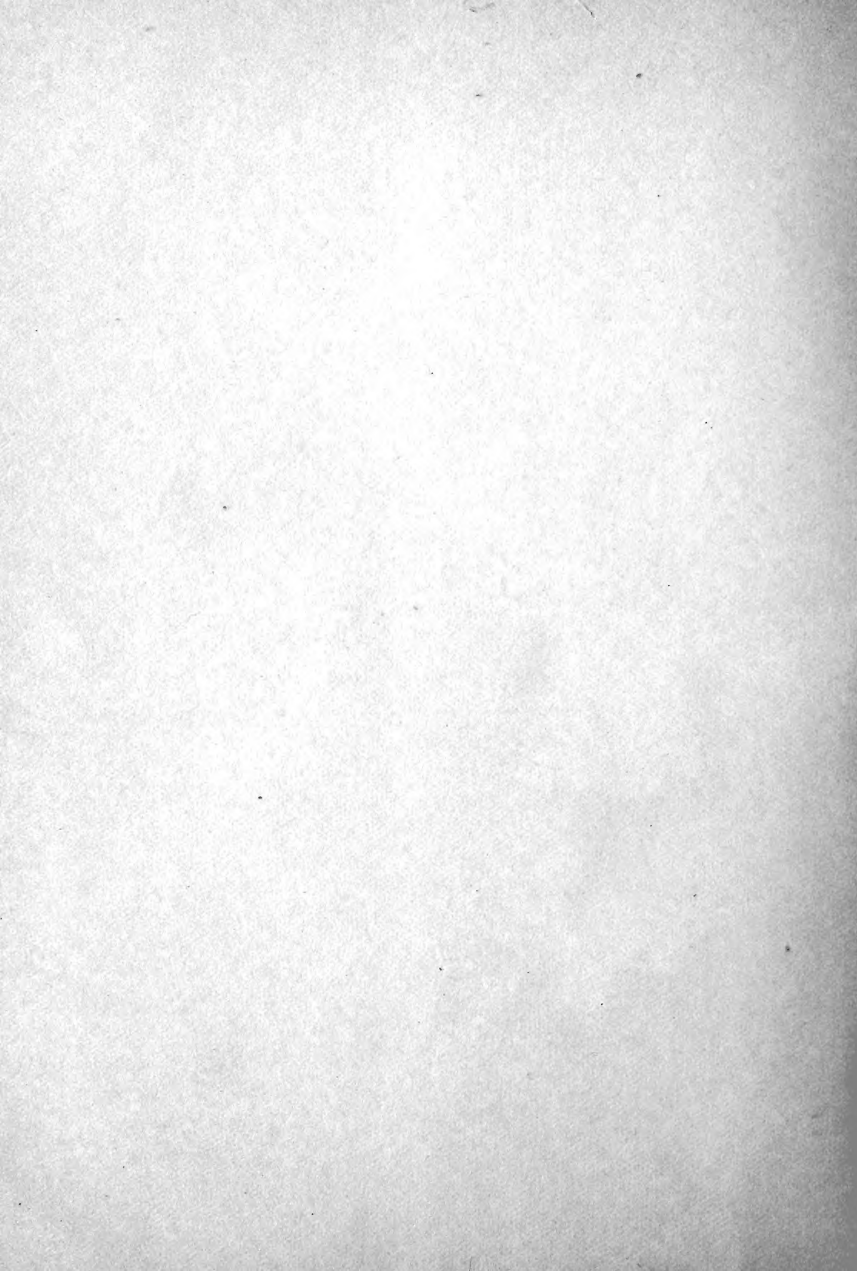
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ABORTION IN COWS

DAVID ROBERTS, D. V. S







Abortion in Cows

By

David Roberts

STATE VETERINARIAN OF WISCONSIN

Author of

"The Practical Home Veterinarian"



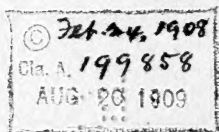
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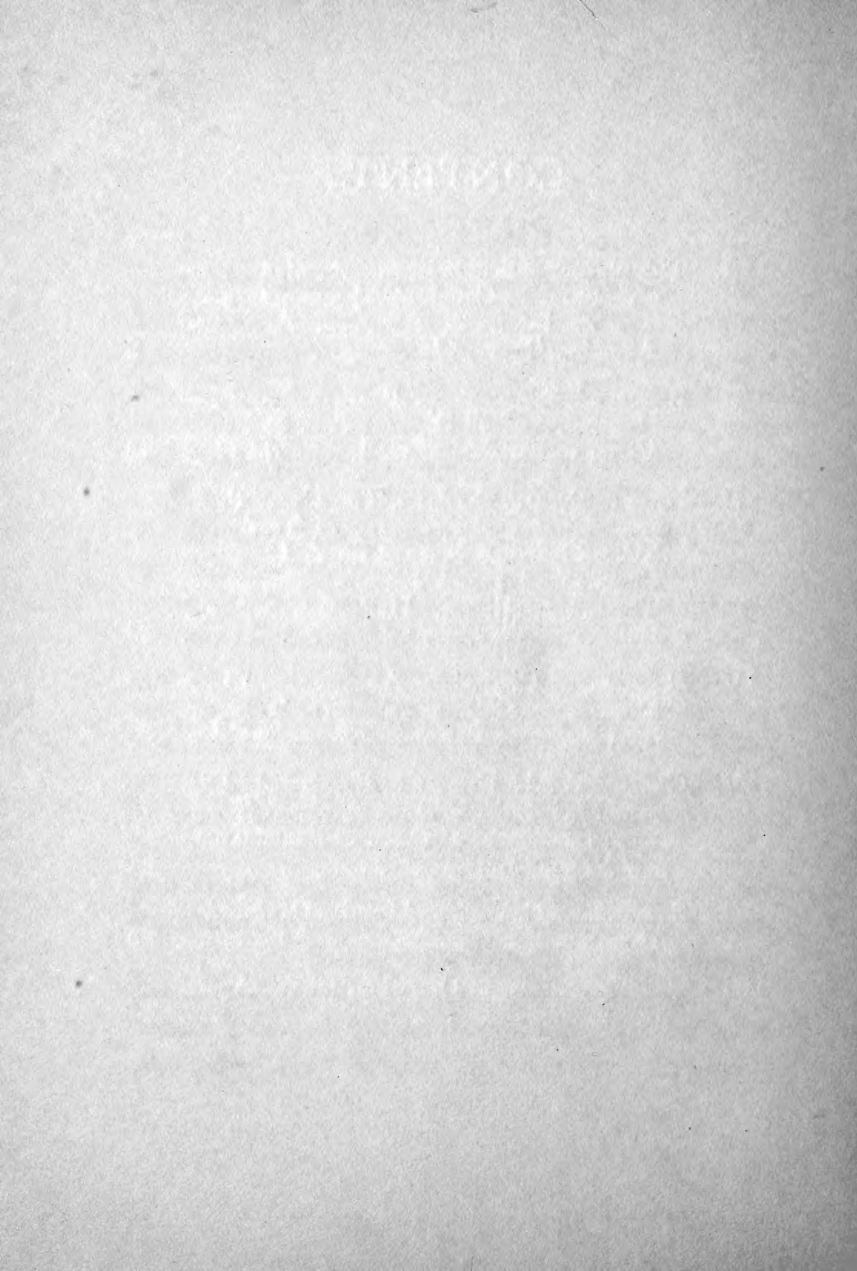
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CONTENTS

CHAPTER	PAGE
I. The Nature of the Disease of Abortion—Popular Theories; Causes of Abortion; Contagious or Infectious Abortion; Accidental Abortion; Tests of Infection	9
II. Effects of Abortion on Profits—The Most Destructive of all Diseases; Four Points of View; an Estimate of the Loss in the U. S.	15
III. How to Prevent the Loss, The Great Problem—History of Discovery of Treatment; Why Ordinary Means Fail; A Complete, Comprehensive and Effective System of Treatment; Calves, Heifers, Cows and Bulls carry the Disease	23
IV. Relation of Contagious Abortion to Other Diseases—Accidental Abortion; Tuberculosis; Ergotism; Barrenness; Scours in Calves	33
V. Contagious Abortion can be Eradicated—Disease May Exist without Apparent Symptoms; Importance of Frequent Examinations and Prompt Action	41
VI. Symptoms of Contagious Abortion Described—Directions for Examination and Detection	45
VII. The Treatment and Directions for its Application	51



PREFACE

In this little volume I am compiling all the general truths I have discovered concerning Contagious Abortion, its nature, symptoms and treatment. The whole is intended as far as possible to answer the numberless questions concerning the disease that are being asked me orally and by mail day after day.

Stock raisers are awake to the importance of dealing promptly with the disease, and my identification with the discovery and introduction of a complete system of treatment, has attracted such a landslide of inquiries that my only escape is to appeal to the agency of the printing press. I have been sending to the live stock and farm papers throughout the country, bulletins on the subject of diseases and care of cattle, and many of these papers have aided me by publishing these bulletins, which are meant to answer or anticipate oft-repeated questions on the subjects treated.

I find, however, that even these periodical bulletins are not sufficient. They are either forgotten or are not circulated widely enough.

So I have prepared this book to make more permanent the replies to questions concerning Contagious Abortion in cows.

I hope the volume will prove a friend in need. If kept at hand, it will surely be more timely than any reply I could give personally, as the latter would be of no avail in an emergency where time is the great factor.

The highest ambition I have concerning this book is that it may advance the profits and true interests of the live stock industry.

DAVID ROBERTS, D. V. S.

*The Nature of the Disease
of Abortion*

CHAPTER I

The Nature of the Disease of Abortion

Abortion has two distinct though related meanings. The word is used to designate the act of prematurely expelling the foetus or, in common cow parlance, "slinking the calf." While this is the first and most common application of the term, the second, and by far the more important designation, is that of the disease which is the cause of perhaps ninety per cent of "calf slinking."

Contagious Abortion

Before it was understood or accepted that abortion is a disease, the act of abortion or prematurely expelling the foetus, was attributed to numberless causes and conditions.

Some laid the trouble to loosening feeds, such as flax seed meal and millet hay that was over-ripe when cut. Others were sure that the smell of fresh blood at butchering time would cause a cow to lose her calf.

But the most common theory, and one still widely accepted even by those who recognize abortion as a disease, is that the malady is

caused by ergot or smut on grasses, corn and other grains. A little farther on I will take up this last theory.

I shall not deny that abortion may be hastened by the use of certain feeds which act upon the bowels in such a way as to cause undue straining by the cow, and it is quite possible that the smelling of fresh blood may be the immediate cause of the act; for nothing will cause more excitement among cows than the smell of the blood of their kind.

But I am convinced that if every one of these cases of abortion, apparently *caused* by certain feeds or periods of excitement, could be investigated, it would be found that nearly all, if not all of them, were really caused by the disease of Contagious Abortion, the germs of which were in the system of the animal, working upon and weakening the genital organs and interfering with the functions of reproduction and gestation; and that the feed or excitement only hastened the inevitable.

It is quite possible that, aside from these circumstances of internal or nervous excitement, many such cows would have carried the calves long enough to give them live birth, but in most cases the calves would have come prematurely. Such are termed "living abortions." Some would even carry the calf full time, but the germs of the disease would remain in the

system of both the cow and the calf, causing trouble later for both.

In my veterinary practice of twenty years, which has been devoted in large part to cattle, with special reference to the disease of abortion, I have found that in nearly every case of abortion, except such as were caused by a fall, a kick or other absolute violence, the germs of the disease were in both the cow and the foetus.

Accidental Abortion

As I have intimated, the act of abortion may be caused by accident to the cow. A fall, a kick by an animal or a brutal attendant, being hooked or otherwise injured, may cause the act of abortion, but, unless the cow is predisposed to the act of abortion by the presence of the germs in the system, the violence must be very severe to cause the expulsion of the foetus.

It is, of course, natural for a cow to carry the calf full time, and nature persists in her course against ordinary interference. So when a cow aborts it is indisputable evidence that she has suffered great violence from disease or accident or both.

The purely accidental *acts* of abortion coming under my care and investigation have been few, and I have used them to establish beyond doubt the contagious or infectious nature of the *disease* of abortion.

A Test

One of my experiments was selecting a herd of twenty-one cows, seven of which had aborted between the fourth and seventh month of pregnancy. Wads of cotton were soaked in the fluid accompanying the expelled foetus of one, and placed in the vagina of three healthy pregnant cows in another herd at a distance, the cotton being allowed to remain an hour. One of the cows aborted in twenty-three days, the other in twenty-eight days—the first being in the fourth and the second in the fifth month of pregnancy; and the third cow, being in the seventh month of pregnancy, aborted on the fortieth day following the experiment, the calf dying three days later of scours. This last case was a “living abortion,” the scours being the result of the germs of abortion in the calf.

To confirm the positive evidence of this experiment, a negative experiment was later carried out. A perfectly healthy cow aborted from an injury caused by falling into an old well. Wads of cotton were soaked in the fluid of this cow and placed in the vagina of healthy pregnant cows, as in the former experiment, and no injurious effects resulted. The cows all carried calves full time, and no germs of abortion were found in the genital organs or after-birth.

*Effects of Abortion
on Profits*



CHAPTER II

Effects of Abortion on Profits

Before taking up the relation of contagious abortion to other diseases of cattle, I want to present the practical side of the subject. The interest of dairymen and breeders of cattle in any disease is purely a financial one. If we were not seeking for profits in the business there would be no cattle industry—no cattle. If we were not battling to maintain or increase profits, we should devote little time or effort to eradicating disease.

But since our profits depend absolutely on the healthy condition of the herds—their freedom from disease—the battle against disease is waged continuously. It is a life and death struggle between the herds and disease, with the chances in favor of the latter, but for the intelligent aid of the breeder.

In this fight against disease, it is but logical to assume that the cattle raiser should give most attention to the malady that is most destructive of his profits, when he is assured what that disease is.

My experience and investigation impel me

to declare specifically that *Contagious Abortion* is the most destructive of all cattle diseases of the profits of the cattle raiser and dairyman of the United States, not even excepting the dreaded and dreadful tuberculosis.

Four Points of Loss

1. THE CALF

Abortion prevents the natural increase in the herd by loss of calves. Even when calves from an infected cow are dropped alive, they are weak and diseased, are an expense and a source of worry, and very often die in the course of a few days or weeks, of scours, which is the direct result of the abortion germs in their systems. A calf thus born is a multiplied source of loss: it causes the loss of milk and feed consumed while it exists, a loss of time to the owner, and is a loss itself in the end.

2. THE MILK

A falling off or total cessation of the flow of milk invariably follows abortion. It requires no argument to show the dairyman that this is a direct cut into his profits, in fact, a vital thrust at his only source of income as a keeper of cows.

The loss to beef breeders, though less direct,

is just as great proportionately; for besides losing her own calf, the beef cow is unfitted, to the extent of her falling off in milk, for suckling other calves of the herd.

The amount of this loss to the whole cattle industry, in the aggregate throughout the country, is appalling when we come to consider it. From the bases for estimate that I have been able to reach, I figure that the loss is from \$12 to \$25 per cow affected, or an average of \$18 per head per year.

There are in America over 20,000,000 dairy cows, and not less than 10,000,000 beef cows: a total of at least 30,000,000 cows. It is a low estimate to say twenty-five per cent. of these are suffering more or less from Contagious Abortion. Thus at least 7,500,000 cows are losing \$135,000,000 annually, or are failing by that amount to produce what they should produce in healthy condition.

The reader may, at the first flash of such enormous figures, consider them overdrawn, but I am inclined to consider the estimate extremely conservative. There are individual cows in the country which bring in \$250 to \$300 gross annually. There are entire herds averaging \$150 and \$200. I do not believe a careful dairyman would keep a cow that returned less

than \$100 gross per year. A cow producing less than that amount under average conditions and cost of feed, should be disposed of, or, what is better, put in condition to produce more income. It is entirely within reason, in fact, is proven by close observation and comparison, that a cow with Contagious Abortion will fall off on an average fifty per cent. in her milk, and consume just as much feed or even more than when in perfect condition. This would figure out \$50 per head per annum; and, on twenty-five per cent (5,000,000) of the dairy cows alone, would equal \$250,000,000, not to mention the beef cows. It is certainly, then, a low estimate to put the figure at little more than half that amount, (\$135,000,000) including both dairy and beef cows.

Note that this tremendous aggregate loss is in milk alone, it being impossible to make even an approximate estimate on the calves. But 7,500,000 calves constitute a large loss, when their possible value and future usefulness are considered.

3. THE COW

The third source of loss is in the cow herself. Besides becoming profitless as a producer of calves and milk, the aborting cow is a source of expense and trouble. Being usually a cow

that has produced well, the owner hopes for her return to former usefulness, and keeps her at an actual loss. Often the final result is barrenness, and too frequently a sacrifice on the butcher's block, with no attempt to restore the cow to breeding condition, which can be done in nearly every case by proper treatment.

4. THE HERD

The fourth source of loss from the abortion-infected cow is the spread of the disease to the entire herd and often to other herds through the services of the bull to which she is bred. Abortion germs are transmitted by all the usual agencies of contact in infectious diseases, and by this additional and surest of all agencies, the herd bull.

The germs of the disease vegetate and multiply in the genital organs of both male and female, and are very liable to be transmitted to the cow served by the bull that has previously served an infected cow.



*How to Prevent the Loss,
The Great Problem*

CHAPTER III

How to Prevent the Loss, the Great Problem

After having proven to my own satisfaction that the enormous loss of scores of millions of wealth to farmers and breeders was just as real as the losses from fire or flood or drought or chinch-bug or any other pestilence or calamity, I began searching for a means to overcome the trouble. Already convinced that abortion was a germ disease, I reasoned that it would have to be attacked *in* the animal by injections into the circulation. After repeated experiments covering several years, I found in a prepared "serum" an effective treatment. Gradually, I worked this treatment into my veterinary practice, where it proved itself to be so effective that owners came to depend on it, and asked for means to administer it themselves. Experience soon proved that the "serum" treatment could be safely and effectively administered by the owners themselves, and its use and demand accordingly spread rapidly.

I was not long, however, in reaching the conclusion that, along with the "serum" for driv-

ing the disease out of the blood must go an anti-septic wash for treating locally the delicate affected parts, to bring immediate relief when the disease began to develop.

It was an easy step from this to the next conclusion, that the germs of the disease must be eradicated from the stables where infected animals had been kept, in order to remove this source of contagion.

To rescue a cow from the effects of the disease, while very necessary, is no more important than stopping the source of the disease.

Thus, I added to the "serum" for injection, the Antisepto for treating the genital organs, and to this the Disinfectall to destroy the germs in the stables where the infected animals had been kept.

This is the complete system of treatment, the directions for which are given in the closing pages of this book. The plan was developed and tested in oft-repeated experiments, then put into use in my practice, where it proved its efficiency beyond doubt; and finally, offered to and accepted by the cattle industry as a reliable system for stamping out Contagious Abortion.

To paraphrase Patrick Henry, "Eternal vigilance is the price of profits," in the farming and live stock industry. The struggle in be-

tween the unerring instincts of the lowest forms of life and the intelligence of the human or highest form. And human intelligence, to come off conqueror, must not only invoke the aid of science, but must take one lesson from the germ itself: attack at every point whenever opportunity offers.

The germs of Contagious Abortion not only work on the diseased animals, but are found in the barns where diseased cattle have been housed, ready to attack every animal rendered susceptible to attack. They go farther back, and are found to affect calves dropped by cows infected with contagious abortion.

Why Ordinary Means Have Failed to Eradicate the Disease

The giving of medicine per mouth, by drenching or dosing, disturbs the normal action of the bowels, and fails to reach effectively the sources of the trouble. In fact, this method often weakens the vital activities and thereby increases the susceptibility of the animal to attack, and thus aggravates the condition it was intended to relieve.

I want to say, in passing, that a cow should *never* be drenched for any trouble. There are better ways of administering medicines, without the dangers of drenching.

Disposing of the Cow

It is a common practice, when Contagious Abortion is discovered in a herd, to sell at a sacrifice those that abort, thereby hoping to banish the disease. But the abortion germ sits in legions upon every vantage point about the stable where this cow has been kept, and is not disturbed by such procedure. And the germs in the cow, if she is sold to another herd, rejoice in the prospects of new and fertile fields.

In selling the aborting cow, of course the dairyman contemplates replacing her. He usually sells her at a sacrifice and cannot purchase her equal, when healthy, for the same money. So he has suffered a direct loss. The cow purchased to replace her will be immediately exposed to infection, both from the rest of the herd and from the stable, where the aborting animal was kept, and will certainly be infected as soon as her condition is favorable. So it is, that the attempt to get rid of the disease by selling off and substitution becomes a means of spreading the malady to other herds, and to new additions to one's own herd.

Neither Direct Treatment nor Disinfection Alone Will Accomplish Permanent Results

While the "serum" treatment will destroy the germs in the mother's blood, and the Anti-

septo will destroy the germs in the genital organs of both the cow and the bull, the importance of Disinfectall must not be overlooked, as the means of destroying the germs in the stables occupied by infected cattle.

On the other hand, disinfecting the stables and cleansing the diseased organs will avail nothing permanent, while the disease runs riot through the system of even one animal in the herd.

Complete, Comprehensive Treatment of the Whole Herd and Infected Quarters, the Only Effective Method

The combination of the three effective agencies of germ destruction into one system of treatment will rid any herd of this most dreadful scourge.

Let it be kept in mind that everything in the herd, excepting steers, require watching and treatment.

CALVES

The germs often affect calves when dropped, even if they are carried full time, where the cow has the germs in the system. But calves dropped before full time, "living abortions," are sure to carry the germs in the blood; and since these almost invariably have scours, the excrement is a fruitful source of infection for

carrying the disease to other calves and cows of the herd.

HEIFERS

Apparently healthy heifers may carry the germs in the blood from birth or be infected when calves, and show no signs of abortion until pregnant, when the germs instinctively become active and vegetate rapidly at every vantage point in the system. Close and frequent examinations, according to directions given farther on in this volume, will disclose the early symptoms of the disease, and with prompt action the calf can be saved.

COWS

A cow that has calved is the most susceptible to attack, and is at the same time the most prolific source from which the disease may spread. This is especially true if the after-birth be retained. In fact, the retained after-birth is often the source of origin of Contagious Abortion in a herd. At calving time the system of the cow is in an exhausted condition and the genital organs peculiarly susceptible to the invasion and spread of disease. Abortion germs in the system, though in comparatively small numbers and low state of activity, become active and increase rapidly at this time. The retained afterbirth becomes a hot-bed for

germ propagation and barrenness often results from the violence of the disease.

The afterbirth, even when dropped within reasonable time, still remains a fertile field of propagation and infection, unless buried or burned at once. The genital organs of the cow should also be given antiseptic treatment as soon as possible.

THE HERD BULL

It may seem strange that the bull should become the most dangerous and active source of abortion; but a moment's reflection will show the reason for this. The sheath of the bull, next to the diseased organs of the cow, is the most fertile source of germ propagation. As soon as the bull serves an infected cow, he is in condition to infect the next cow he serves, and the next, to the entire herd, and all outside herds where his service is used. In spreading the disease in one's own herd, and in carrying it abroad to other herds, the bull is therefore the greatest source of danger.

One should not only see that his own bull is free from infection at each service, but that all cows brought to him for service are free from symptoms of the disease.

THE WHOLE HERD

Thus the necessity of treating the entire

herd, except steers, is apparent; for while one infected cow, bull, heifer, or calf remains, the entire herd, and the neighboring herds, are in danger.

Steers are not a source of infection and do not require treatment, for the reason that when an animal is castrated he loses the means of transmitting the disease, and the system having no sources for germ propagation, rids itself of the effects of the disease.

Cleansing the genital organs of cows and bulls with antiseptic treatment, and cleansing the entire systems of cows, bulls, calves, and heifers by the hypodermic injection of Anti-abortion "serum" completes the treatment, so far as the animals themselves are concerned. Thorough disinfection of the stables completes the entire system of treatment, and wipes out the germ at every possible source of propagation.

Not a Theory

If this system were merely a finely spun theory, I should not be writing this book. But it is the result of experiment and experience through twenty years' of practice, and is confirmed by every one of thousands of owners who have followed the plan out in its details.

*Relation of Contagious Abortion
to other Diseases*



CHAPTER IV

Relation of Contagious Abortion to other Diseases

1. Accidental Abortion

When a cow aborts solely as the result of an injury, the disorder cannot be called a disease; but unless the cow so aborting is looked after carefully, Contagious Abortion often results. For the cow is in the most susceptible condition possible for infection. The retaining of part of the afterbirth or foetus will often result in Contagious Abortion.

2. Tuberculosis

A striking fact, developed from my experience as a veterinarian, is that fully seventy-five per cent of all cattle slaughtered because of tuberculosis were also infected with Contagious Abortion.

This observation tends to corroborate a theory at which I had arrived in another way, that contagious abortion germs in the system prepare the way for the entrance of other disease germs, and predispose a cow to tuberculosis and other serious disorders.

3. Ergotism

When a cow aborts, of course the act must be attributed to some cause. Many simply jump to the conclusion that the cow has been subjected to violence in some way; others attribute it to feeds or periods of excitement, without investigating the case.

Perhaps the most common cause to which abortion has been attributed is ergot.

The action of ergot upon the animal has a tendency to contract the womb upon the foetus and this was thought to be the direct cause of abortion.

The common term for ergot is smut, and this is often seen upon grasses, corn, and other grain, and is more prevalent during some seasons than others.

In the spring of 1893, my attention was called to a number of cattle afflicted with ergotism, having consumed a large amount of June grass, the June grass being so affected with ergot as to cause this herd of cattle to lose their feet and the ends of their tails. Many of them were seen walking around after the claws and first joints had dropped off. One animal in particular was so affected as to have her feet partly drop off. But upon change of feed and a course of treatment, recovered from the disease. She



Fet of cows severely afflicted with Ergotism. From a photograph.

being pregnant at the time of this trouble and carrying her calf full time, is sufficient evidence that in this case ergot had nothing to do with abortion.

On the theory that ergot would cause abortion, owners of fine cows accidentally getting with calf from grade or mongrel bulls, have tried to bring about abortion by administering large doses of ergot. The failure of such attempts in every case coming to my knowledge or observation is further evidence that ergot does not cause abortion.

The fact that a cow afflicted with ergotism, or any other disease, aborts, does not prove nor indicate that that disease is the cause of the abortion. Examination and test will show in nearly all cases that the cow is suffering from Contagious Abortion, *in addition to other ailments*, and the act of abortion is the direct result of the activity of the germs of Contagious Abortion.

4. Barrenness

Barrenness results from abortion in two ways:

First, the presence and activity of abortion germs in the womb will cause barrenness; the germs causing a catarrhal condition of the womb and destroying the vitality of the semen of the bull, thus preventing conception.

The destruction of the germs of abortion in the system of the cow, by the "serum" treatment, will often overcome this form of barrenness and restore the cow to her former usefulness.

Second, the diseased condition of the genital organs in Contagious Abortion frequently causes the mouth of the womb to become raw and irritated. When the disease is eradicated from the system, the mouth of the womb will heal up in a calloused condition, and become completely closed. This prevents the cow from breeding, and is usually regarded as permanent barrenness. But even this form of barrenness can positively be overcome by a special treatment.

Positive permanent barrenness is far less common than is generally believed. Only the absence or destruction of the ovaries, or other vital parts of the reproductive organs, or constitutional interference with their functions, will produce permanent barrenness.

No dairyman or breeder should dispose of a valuable cow because she does not breed, until he has thoroughly investigated the cause and made an effort to remove it.

5. Scours in Calves

I have already called attention to the fact

that scours in calves is often the result of Contagious Abortion germs born in the calf. This disease, like all other developments of abortion, is communicable to other members of the herd.

Housing of Cattle

While this subject is not directly under discussion here, I cannot pass on without repeating what is everywhere urged: give cows plenty of sunlight and good ventilation. Damp, dark, poorly-ventilated quarters, partly underground, are absolutely certain to prepare the way for disease to enter, and to spread to the entire herd whatever contagious malady may affect one or more animals. An open shed is preferable to dark, foul basement stalls. No amount of fumigation or disinfection can make up for lack of air and sunlight.

*Contagious Abortion can
be Eradicated*

CHAPTER V

Contagious Abortion can be Eradicated

Procrastination is not only the thief of time, but the purloiner of profits in the live stock business. And there is no disease of cattle, excepting possibly tuberculosis, that advances more stealthily "under cover" than Contagious Abortion. An entire herd may be afflicted without apparent symptoms. Later, the disease may so develop as to render treatment unavailing as far as saving the calves is concerned.

But when careful examinations are made at frequent periods, the first and less apparent symptoms will give ample opportunity to drive the disease from the system, save the calf and leave the cow in good condition for milk production.

Nothing is surer than the absolute eradication of abortion, if the system of treatment is persistently pursued.

Even when the disease has advanced so far as to kill the foetus, the cow can be saved and placed in prime breeding condition after the foetus is expelled; while without treatment, she is likely to become barren and worthless, be-

sides being a source of infection to other cows.

Does the Treatment Hurry Abortion?

When Contagious Abortion reaches the stage in which the umbilical cord of the foetus is so diseased as to shut off the circulation from the mother, and, as a consequence, life ceases in the foetus, the treatment has a tendency to cause the act of abortion. And this is one of the good points of the treatment. For the longer the foetus is carried after life is extinct, the greater the damage to the cow and the danger to the herd.

No cattle owner should hesitate to begin the treatment at any stage of the disease; for the final result is always the complete stamping out of the disease, and delays at any time not only defer this desired result, but entail material losses.

If a pregnant cow, not affected by abortion, be treated as a precaution, the treatment has no ill effects on her. Neither is any ill effect produced upon the quality of milk when milch cows are treated.

*Symptoms of Contagious
Abortion Described*

CHAPTER VI

Symptoms of Contagious Abortion Described

Abortion germs may exist for months, or even years, in the system of an animal, in a comparatively inactive state, without making any distinct outward sign of their presence.

A number of cows aborting in a herd should be looked upon with suspicion and any of the following signs looked for: swelling of the udder and vulva; separation from the balance of the herd; dullness; cessation of chewing of cud; restlessness; stamping of the hind feet; passing of a small water bag and a little later a foetus. Sometimes both are expelled together; then again the foetus will be expelled and the afterbirth retained.

The first certain symptom is the appearance of small red patches in the vulva. Frequent examinations should be made in this manner: have a helper hold aside the tail of the cow, heifer, or calf, and, with your two hands, open the lips of the vulva. The appearance of small red patches on the lining membrane of the vulva is unmistakable evidence that the animal is in-

fectured and in condition to spread the disease. Service of the herd bull to a cow or heifer showing these symptoms will infect the bull and render him in condition to spread the disease to your entire herd and other herds where he is used.

If in the pregnant cow or heifer there appears with the red patches in the vulva, a secretion of white matter, prompt action should be taken, as she is in bad condition.

Swelling of the udder and vulva at any time before the last month of pregnancy, are advanced symptoms of abortion, and the crisis may come at any time. However, prompt attention will often prevent abortion even at this advanced stage of the disease.

Waiting for Distinct Symptoms is Dangerous and Expensive

When the first appearance of the red patches in the vulva is noticed, it is the part of wisdom not only to disinfect the stables and treat the affected parts of the animals showing symptoms with the antiseptic wash, but also to administer the "serum" per hypodermic syringe. In fact, this last mentioned treatment should be first, as eradicating the disease from

the blood is the only way to render local treatment effective.

Further: the discovery of one diseased animal in your herd is very strong circumstantial evidence that the others are infected. They may only show poor general condition, or may appear to be in perfect health, but they should be under strong suspicion and continually watched and frequently examined. Many owners run no risk, but treat the entire herd so as to forestall the disease.



*The Treatment and Directions
for its Application*



CHAPTER VII

The Treatment and Directions for its Application

The three preparations named in the following directions, the Anti-Abortion "serum," Antisepto and Disinfectall, are the preparations I have used in this systematic treatment in my practice. They are in use in the hands of hundreds of breeders, large and small, throughout the country. Administered as directed, they constitute a completely effective treatment.

By injecting the Anti-Abortion "serum" in under the skin of the cow, heifer, or bull, with the use of a hypodermic syringe, the germs of this disease in the system of the animal are destroyed. By washing out the sheath of the bull and the vagina of the cow with an antiseptic solution made with Antisepto, the germs that gather in the discharge are entirely removed, and by disinfecting the stalls with Disinfectall, the germs of this disease in the stables are destroyed.

Directions

Pour the "serum" into a cup and have ready for use. Fill this syringe (Fig. 1). It holds



Fig. 1



Fig. 2

exactly one dose for animals over one year old. Stock under one year and over six months old should receive one-half syringe full, calves from three weeks to six months, one-fourth syringe full, at each injection. Steers need not be treated.

Pick up the skin of the animal with the left hand directly back of the shoulder blade and in this manner (Fig. 2) with a quick, short jab with the syringe, insert the needle into the skin. Then press in piston.

Cattle can be treated in the stable very easily.

The illustration on the opposite page shows a cow being treated in the barn-yard.

Whether you give treatment in the stable, barn-yard, or pasture, you will find that each



Attendant administering Serum in chute in barnyard. Flushing Tank in readiness to cleanse genital organs with Antiseptic Solution. after Serum treatment.

animal can be given the Serum in less than one-half minute.

By giving these injections you will eradicate all germs of Abortion from the system of the animal.

After each injection of the Serum, the genital organs of a cow or bull should be treated with the Antisepto according to directions below.

Germs in Discharge

Take one tablespoonful of Antisepto to one quart of luke warm water, and with the hose and

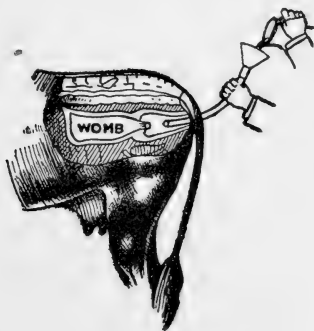


Fig. 3

funnel flush out the genital organs of the cow, as shown in Fig. 3, inserting the hose about six inches into the vagina, and pouring in the solution as indicated.

All cows and heifers having an unnatural discharge from the vagina should have their genital organs washed out once daily with the Antisepto solution, until all discharges cease. This is important, as animals showing a discharge are in a condition to spread the disease.

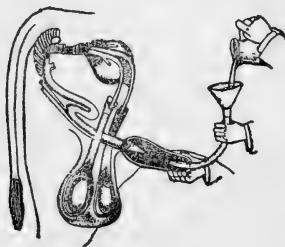


Fig. 4

The sheath of the herd bull should be washed out with the Antisepto solution once a week and after each service. Insert the hose about three inches into the sheath of the bull and pour in the solution, as shown in Fig. 4, a helper holding the sheath to prevent the hose slipping out. This treatment will protect the bull from becoming infected, and will prevent him from infecting cows and heifers bred to him.

Where a large number of animals must be treated with the antiseptic wash, the flushing tank shown in Fig. 5 is a great convenience and saves much time.



Fig. 5.—Showing method of flushing genital organs with hose from Flushing Tank hung on trolley in barn.



The hair on a cow's tail should be kept closely clipped from the tuft or brush up to the body; also the hair at the end of the bull's sheath. When the hair is left long in these places it accumulates pus and other discharges and constitutes a fertile source of germ propagation and infection.

Clean Your Barn Floors

One ounce of Disinfectall to one gallon of water will make a powerful disinfectant.

Take an ordinary sprinkling can, fill it with water, put in your Disinfectall, in the above proportion, and sprinkle your stable floors freely. If you use whitewash, add one or two ounces of Disinfectall to each pail of whitewash.

Use Disinfectall once a week.

Care of Herd Under Treatment

A cow in heat should be kept in during that period.

The bull should not be allowed to run with the herd, and should not be permitted to serve cows from other herds; nor should you take your cows to other herd bulls.

A cow that has aborted should not be bred until such time as she would have come in heat if she had carried her calf full time, and not

then unless she is perfectly clean and free from any vaginal discharge. This is important, as a disregard of this rule is contrary to nature and hurtful to the cow.

Bury or burn afterbirth or foetus, and thoroughly disinfect the stalls.

Special care should be taken in keeping stables clean and well ventilated. The liberal use of whitewash and plenty of sunlight are desirable; also thoroughly disinfect with Disinfectall.

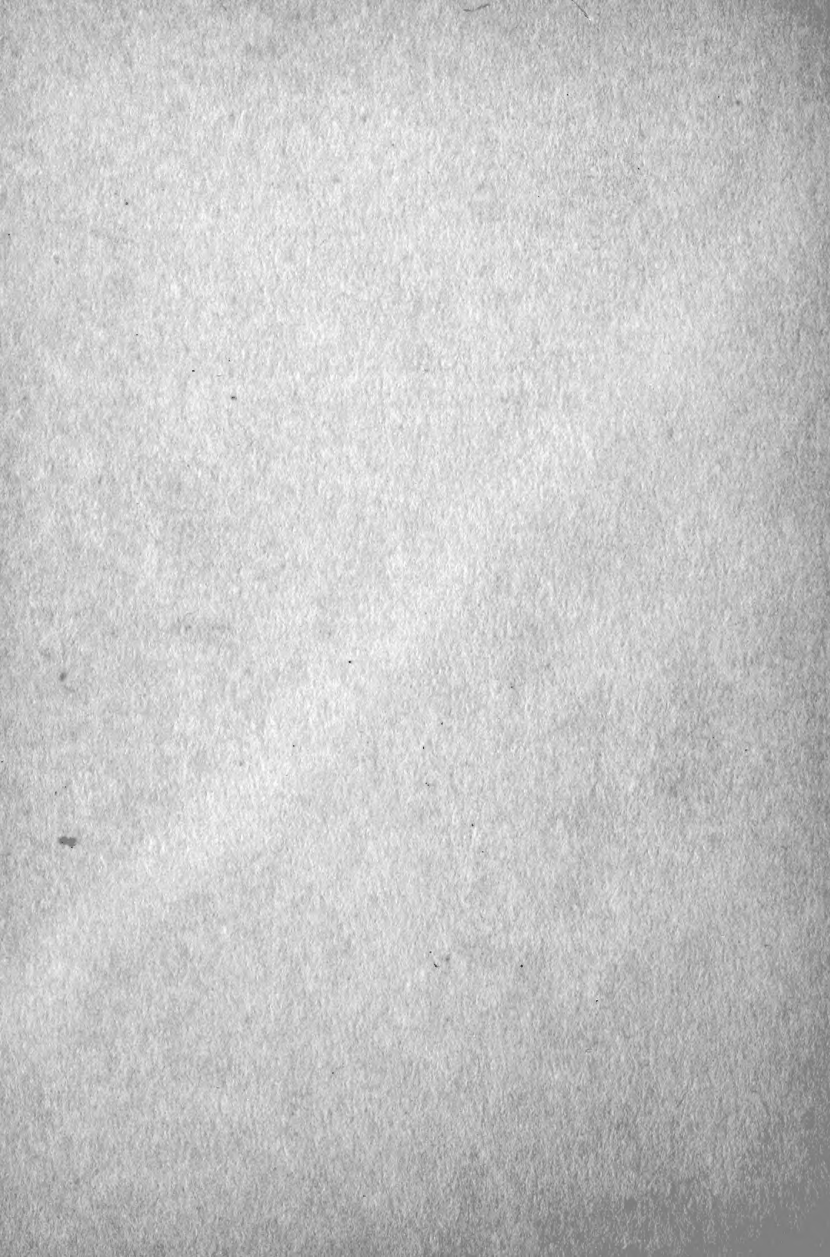
Take it Altogether

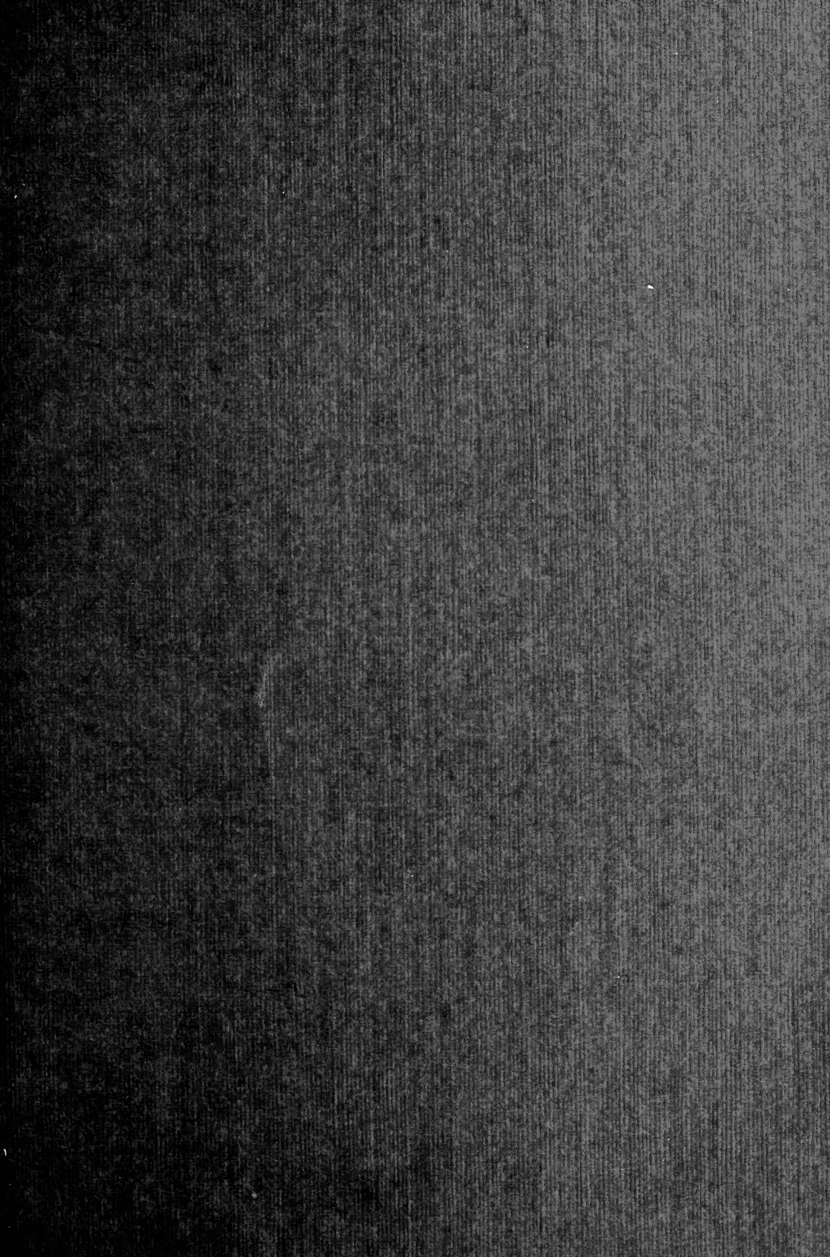
“Serum” treatment once a week to remove the germs from the blood.

Antisepto, as directed, to remove the germs from the discharge.

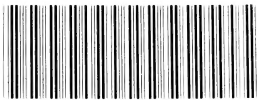
Disinfectall once a week to destroy the germs in the stables.

This simple treatment, carried out systematically, meets the germ at every turn, and will positively wipe out the disease of abortion.





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